

(19) World Intellectual Property
Organization
International Bureau



(43) International Publication Date
11 August 2005 (11.08.2005)

PCT

(10) International Publication Number
WO 2005/074327 A1

(51) International Patent Classification⁷: **H05B 33/08**

(74) Agent: MARTIN, Philip, John; Marks & Clerk, 66-68 Hills Road, Cambridge CB2 1LA (GB).

(21) International Application Number:

PCT/GB2005/000233

(22) International Filing Date: 24 January 2005 (24.01.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:

0401999.8 30 January 2004 (30.01.2004) GB

(71) Applicant (for all designated States except US): **CAMBRIDGE DISPLAY TECHNOLOGY LIMITED** [GB/GB]; Greenwich House, Madingley Rise, Madingley Road, Cambridge, Cambridgeshire CB3 0TX (GB).

(72) Inventor; and

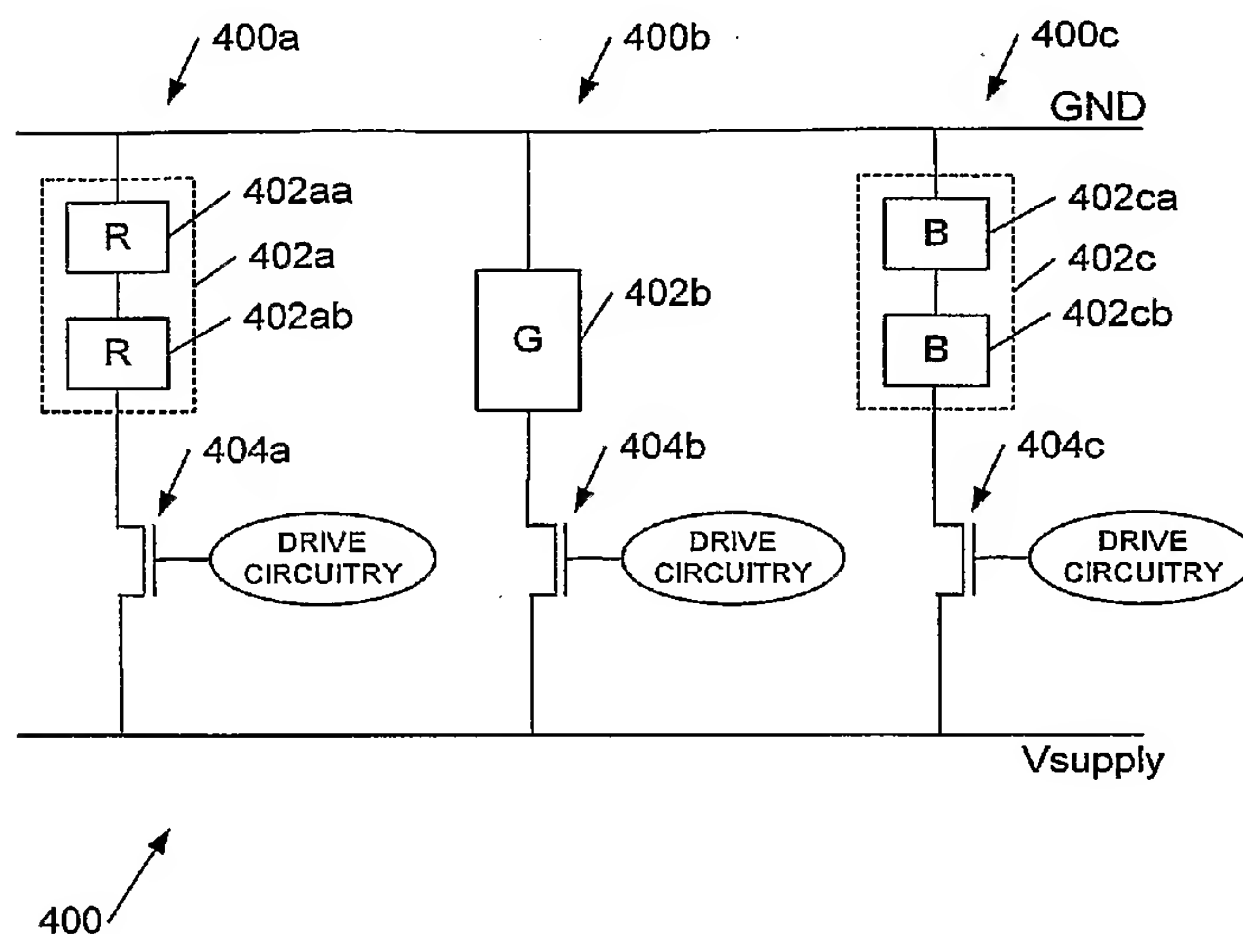
(75) Inventor/Applicant (for US only): **SMITH, Euan, Christopher** [GB/GB]; Cambridge Display Technology Limited, Greenwich House, Madingley Rise, Madingley Road, Cambridge, Cambridgeshire CB3 0TX (GB).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

[Continued on next page]

(54) Title: DISPLAY DEVICE



(57) Abstract: This invention relates to improved organic light emitting diode (OLED) display devices, and in particular to increased efficiency colour display devices. An organic light emitting diode (OLED) display device is described, the display device having a plurality of pixels each comprising at least two sub-pixels of different types, a first sub-pixel type comprising an OLED device including a first type of OLED material and a second sub-pixel type comprising an OLED device including a second type of OLED material, and wherein at least one of said first and second types of sub-pixel comprises a plurality of series-connected OLED devices. Employing series-connected sub-pixels where different types of OLED material are used for a display such as a colour, active matrix OLED display facilitates balancing sub-pixel drive voltages and hence enables the production of display devices with improved efficiency.

WO 2005/074327 A1



Published:

— *with international search report*

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.